

WHAT IS CLAIMED AS NEW AND IS DESIRED TO BE SECURED BY LETTER

PATENT OF THE UNITED STATES IS:

1. A multi-function apparatus, comprising:

5 a plurality of image forming apparatuses, each comprising a controller including a program memory for storing a program used by each of said plurality of image forming

apparatuses, respectively;

 a buffer memory;

10 a data transmission mechanism configured to connect said plurality of image forming apparatuses to each other so as to allow a data transmission therebetween; and
 a connector configured to connect an external storage to said data transmission mechanism so as to allow a data transmission from said external storage to said buffer memory, said external storage storing data of programs to be respectively used by said plurality of image forming apparatuses,

15 wherein, when said external storage is connected to said connector, said data of said programs stored in said external storage are transmitted to said buffer memory through said connector and are downloaded into said program memory included in said controller of each of said plurality of image forming apparatuses, respectively, through a data transmission using said data transmission mechanism.

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2. A multi-function apparatus as defined in Claim 1, wherein said data transmission mechanism includes a communications mechanism which is normally used by said plurality of image forming apparatuses to exchange control data therebetween.

3. A multi-function apparatus as defined in Claim 2, wherein said data of said programs transmitted from said external storage to said buffer memory are downloaded with said communications mechanism to said program memory included in said controller of each of said plurality of image forming apparatuses, respectively, at a transmission rate
5 faster than a regular transmission rate used for said control data.

4. A multi-function apparatus as defined in Claim 2, wherein said communications mechanism comprises a universal asynchronous receiver transmitter.

10 5. A multi-function apparatus as defined in Claim 1,
wherein said data transmission mechanism includes an image data bus which is normally used by said plurality of image forming apparatuses to exchange image data therebetween.

15 6. A multi-function apparatus as defined in Claim 1, wherein said plurality of image forming apparatuses includes at least one of a copying apparatus, a printing apparatus, and a facsimile apparatus.

7. A multi-function apparatus, comprising:
a plurality of image forming apparatuses, each comprising controlling means
20 including program memory means for storing a program used by each of said plurality of image forming apparatuses, respectively;
buffer memory means;
data transmission means for connecting said plurality of image forming apparatuses to each other so as to allow a data transmission therebetween; and

connecting means for connecting an external storage to said data transmission means so as to allow a data transmission from said external storage to said buffer memory means, said external storage storing data of programs to be respectively used by said plurality of image forming apparatuses,

5 wherein, when said external storage is connected to said connecting means, said data of said programs stored in said external storage are transmitted to said buffer memory means through said connecting means and are downloaded into said program memory means included in said controlling means of each of said plurality of image forming apparatuses, respectively, through a data transmission using said data transmission means.

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8. A multi-function apparatus as defined in Claim 7, wherein said data transmission means includes a communications mechanism which is normally used by said plurality of image forming apparatuses to exchange control data therebetween.

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9. A multi-function apparatus as defined in Claim 8, wherein said data of said programs transmitted from said external storage to said buffer memory means are downloaded with said communications mechanism to said program memory means included in said controlling means of each of said plurality of image forming apparatuses, respectively, at a transmission rate faster than a regular transmission rate used for said

20 control data.

10. A multi-function apparatus as defined in Claim 8, wherein said communications mechanism comprises a universal asynchronous receiver transmitter.

11. A multi-function apparatus as defined in Claim 7,

wherein said data transmission means includes an image data bus which is normally used by said plurality of image forming apparatuses to exchange image data therebetween.

5 12. A multi-function apparatus as defined in Claim 7, wherein said

plurality of image forming apparatuses includes at least one of a copying apparatus, a printing apparatus, and a facsimile apparatus.

13. A multi-function image processing apparatus, comprising:

10 a plurality of image processing apparatuses, each comprising a controller including a program memory for storing a program used by each of said plurality of image processing apparatuses, respectively;

a buffer memory;

15 a data transmission mechanism configured to connect said plurality of image processing apparatuses to each other so as to allow a data transmission therebetween; and

20 a connector configured to connect an external storage to said data transmission mechanism so as to allow a data transmission from said external storage to said buffer memory, said external storage storing data of programs to be respectively used by said plurality of image processing apparatuses,

wherein, when said external storage is connected to said connector, said data of said programs stored in said external storage are transmitted to said buffer memory through said connector and are downloaded into said program memory included in said controller of each of said plurality of image processing apparatuses, respectively, through a data transmission using said data transmission mechanism.

14. A method for program downloading, comprising the steps of:

providing a multi-function apparatus comprising

a buffer memory,

a connector, and

a plurality of image forming apparatuses connected to each other with a

data transmission mechanism, each of said plurality of image forming apparatuses

including a controller provided with a program memory for storing a program

used by each of said plurality of image forming apparatuses, respectively;

connecting an external storage storing data of programs to said connector;

transmitting said data of programs stored in said external storage into said buffer memory; and

downloading said data of said programs, transmitted from said external storage to said buffer memory, to said program memory of said controller included in each of said plurality of image forming apparatuses, respectively, through a data transmission using said data transmission mechanism.

15. A method as defined in Claim 14, wherein said downloading step includes

using a communications mechanism, said data transmission mechanism including said

20 communications mechanism which is normally used by said plurality of image forming

apparatuses to transmit control data therebetween.

16. A method as defined in Claim 15, wherein said downloading step includes

downloading said data of said programs, transmitted from said external storage to said

buffer memory by said transmitting step, with said communications mechanism to said program memory of said controller included in each of said plurality of image forming apparatuses, respectively, at a transmission rate faster than a regular transmission rate used for said control data.

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17. A method as defined in Claim 16, wherein said downloading step includes setting said data transmission mechanism to said faster transmission rate.

18. A method as defined in Claim 15, wherein said downloading step includes
10 using said communications mechanism which comprises a universal asynchronous receiver transmitter.

19. A method as defined in Claim 14, wherein said downloading step includes
using said data transmission mechanism which includes an image data bus which is
15 normally used by said plurality of image forming apparatuses to exchange image data
therebetween.

20. A method as defined in Claim 14, wherein the downloading step includes
checking an amount of data transmitted in order to determine whether downloading of
20 said data of programs is completed.

21. A method as defined in Claim 14, further comprising:
selecting at least one of said plurality of image forming apparatuses to which said
data of programs is downloaded, wherein said selecting step includes inputting a selection

of said at least one of said plurality of image forming apparatuses from at least one of said external storage and an operation panel of said multi-function apparatus.

22. A computer readable medium configured to store computer instructions for
5 execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps recited in any one of Claims 14 – 21.

23. A system comprising:

a memory device having embodied therein a download program; and

10 a processor in communication with the memory device, the processor configured to

connect to a multi-function apparatus including

a buffer memory,

a connector, and

15 a plurality of image forming apparatuses connected to each other with a data transmission mechanism, each of said plurality of image forming apparatuses including a controller provided with a program memory for storing a program used by each of said plurality of image forming apparatuses, respectively,
including a controller provided with a program memory for storing a program used by each of said plurality of image forming apparatuses, respectively,

connect to an external storage which stores data of programs, said external storage

20 being connected to said connector,

transmit said data of said programs stored in said external storage into said buffer memory, and

download said data of said programs, transmitted from said external storage to said buffer memory, to said program memory of said controller included in each of

said plurality of image forming apparatuses, respectively, through a data transmission using said data transmission mechanism.